AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (currently amended) A plant comprising:

a solvent source that is configured to provide a carbon dioxide-depleted hydrogen sulfide-containing lean physical solvent;

a vacuum stripper coupled to the solvent source and ~~that is~~ configured to produce an ultra-lean physical solvent from the [[a]] carbon dioxide-depleted ~~lean~~ hydrogen sulfide-containing lean physical solvent; and

at least one of a high-pressure flash vessel and a medium pressure flash vessel coupled to the vacuum stripper, wherein the at least one of the high-pressure flash vessel and the medium pressure flash vessel are configured to provide a substantially hydrogen sulfide-free stripping gas to the vacuum stripper.

2. (currently amended) The plant of claim 1 further comprising an absorber that is configured to receive ~~receives~~ the ultra-lean physical solvent and that is further configured to operate with an isothermal gradient or with a decreasing top-to-bottom thermal gradient.

3. (currently amended) The plant of claim 2 wherein the absorber is configured to receive ~~receives~~ a feed gas that comprises at least 10 mol% carbon dioxide and at least 500 ppm hydrogen sulfide.

4. (Original) The plant of claim 3 wherein the feed gas has a pressure of at least 1000 psig.

5. (Original) The plant of claim 4 wherein the feed gas is at least partially dehydrated, and wherein the at least partially dehydrated feed gas is further cooled by a rich solvent.

6. (Original) The plant of claim 1 wherein the lean hydrogen sulfide-containing physical solvent comprises at least 100 ppm hydrogen sulfide, and wherein the ultra-lean physical solvent comprises less than 100 ppm hydrogen sulfide.

7. (Original) The plant of claim 6 wherein the ultra-lean solvent comprises less than 10 ppm hydrogen sulfide.

8. (Original) The plant of claim 1 wherein the lean hydrogen sulfide-containing physical solvent is selected from the group consisting of propylene carbonate, n-methyl pyrolidone, dimethyl ether of polyethylene glycol, and tributyl phosphate.

9. (Original) The plant of claim 1 wherein the substantially hydrogen sulfide-free stripping gas comprises at least 95 mol% carbon dioxide.

10. (currently amended) The plant of claim 1 wherein the solvent source comprises ~~further comprising~~ a separator in which acid gas is separated from a rich solvent, thereby producing the lean hydrogen sulfide-containing physical solvent, and wherein the plant is further configured such that part of the acid gas can be ~~is~~ compressed and injected into a formation.

11. (Original) The plant of claim 10 wherein the vacuum stripper further produces a second acid gas that is combined with the acid gas from the separator.

12. (currently amended) A method of producing an ultra-lean physical solvent, comprising:

separating in at least one of a high-pressure flash vessel and a medium pressure flash vessel a substantially hydrogen sulfide-free stripping gas from a physical solvent; and

using the substantially hydrogen sulfide-free stripping gas to strip ~~stripping~~ hydrogen sulfide from a carbon dioxide-depleted ~~lean~~ hydrogen sulfide-containing lean physical solvent in a vacuum stripper to form the ultra-lean physical solvent.

13. (Original) The method of claim 12 further comprising a step of feeding the ultra-lean physical solvent to an absorber, and operating the absorber with an isothermal gradient or with a decreasing top-to-bottom thermal gradient.

14. (Original) The method of claim 13 further comprising a step of feeding a feed gas to the absorber at a pressure of at least 1000 psig, wherein the feed gas comprises at least 10 mol% carbon dioxide and at least 500 ppm hydrogen sulfide.

15. (Original) The method of claim 12 wherein the lean hydrogen sulfide-containing physical solvent is selected from the group consisting of propylene carbonate, n-methyl pyrolidone, dimethyl ether of polyethylene glycol, and tributyl phosphate.

16. (Original) The method of claim 12 wherein the substantially hydrogen sulfide-free stripping gas comprises at least 95 mol% carbon dioxide.